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Sir:

Transmitted herewith for filing is the Utility patent application of:

|           |   |
|-----------|---|
| INVENTOR: | Muneomi KATAYAMA  |
| FOR:      | TERMINAL EQUIPMENT OF GOLF PLAY<br>INFORMATION AND ANALYZING SYSTEM THEREOF |

Enclosed are:

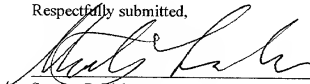
- ☒ 3 sheets of ☐ formal ☐ informal drawings.
- ☐ An assignment of the invention to \_\_\_\_\_ with PTO Form 1595.
- ☒ A certified copy of Japanese Application 11-212753. Priority is claimed if not already of record.
- ☐ An information disclosure statement with PTO Form 1449 and cited references.
- ☐ A preliminary amendment
- ☐ An Executed Declaration

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Respectfully submitted,



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**TERMINAL EQUIPMENT OF GOLF PLAY INFORMATION**  
**AND ANALYZING SYSTEM THEREOF**

**BACKGROUND OF THE INVENTION**

**1. Field of Invention**

The present invention relates to a hand held terminal equipment of golf play information and an analyzing system thereof in which a golf player carries a terminal equipment main body when the player plays golf and inputs information such as scores into the terminal equipment main body so that the terminal equipment can store play results therein and can feed back necessary information to the golf player.

**2. Description of the Related Art**

Golf has been popular among young and old of both sexes. In order to record golf scores, a golf player conventionally has written scores on a portable sheet. However, the player has frequently made mistakes in writing scores.

In addition, since only scores are written, the play results state only in figures such as "par" and "eagle". Therefore, there are disadvantages to having only this limited information in that it is difficult to grasp how a golf course is captured and where on the course a bad shot was made.

**SUMMARY OF THE INVENTION**

An object of the present invention is to eliminate the above disadvantages and to provide an input means of golf scores and an output means, and to directly provide information which serves as a reference for improving a player's skill to the player, such that the player's interest will be greatly enhanced.

A first aspect of the invention is that when playing golf, a golf player carries a terminal equipment main body and inputs and store a score and other necessary data into the terminal equipment main body using an input member such as an electronic

pen so that information necessary for future play can be returned as analyzed results to the golf player.

Further, another aspect is that the data collected by the player is  
are collectively managed and edited so as to be capable of objective analysis.

Still another aspect is that the collectively managed and analyzed data can be provided to a player who is in a remote place by using a movement analyzing system and the world wide web (www).

The present invention has the following effects.

A golf player carries the terminal equipment main body and inputs play results electronically thereinto. As a result, compared with a conventional card, a mistake in writing is eliminated and thus the recording operation is easy and certain.

A layout of a course shown on the terminal equipment main body is seen so that capture and strategy on the course can be planned easily.

The terminal equipment main bodies carried by respective players in a team or in several parties are managed collectively by a cradle main body, and the data in the terminal equipment main bodies are edited by the computer main body. As a result, the ranking and scores of all the members in the party can be outputted at real time by the output mechanism so that the operation is very accurate and efficiently.

The golf player draws a trajectory of a shot ball, a state of the ball and the like on the layout displayed on the terminal equipment main body during play, and this information is recorded into the computer main body.

As a result, the above data are captured onto the terminal equipment main body so that later the shot can be corrected at a next play.

In addition, the play results (besides numerical values) as well as the layout of the course and the trajectory of the ball can be outputted by the output mechanism onto paper or onto an electronic means. As a result, these data can be useful to improve future play as a reference. These data can be received via Internet by using the www.

Further, the trajectory of a ball shot by a professional golf player, can be previously inputted as a good example of the capture on the course onto the layout displayed on the terminal equipment main body so that this can be a reference of the capture on the course and can greatly attract the interest of the player.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a front view of a terminal equipment main body.

Figure 2 is a schematic diagram showing a layout of an analyzing system.

Figure 3 is a layout of a middle or long golf course hole displayed on the terminal equipment main body.

Figure 4 is a layout of a short golf course hole.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

A system of an embodiment shown in the drawing is composed of a terminal mechanism (A), as shown in Figure 1, for imputing play scores and contents thereinto, which is carried by a golf player, a mechanism (B), as shown in Figure 2, for analyzing the scores and contents. The mechanism (B) for analyzing the scores and the contents is composed of a dedicated cradle mechanism (b1) which is capable of loading data for a group of golf players simultaneously, a personal computer analyzing mechanism (b2) for analyzing the data inputted into the terminal mechanism (A), and an output mechanism (b3) for outputting the analyzed results of the personal computer

(b2).

The terminal mechanism (A) is of a pocket size box type so as to be convenient for a golf player to carry composed of a terminal equipment (1) provided with a display section (2), which is capable of providing information such as a layout of a golf course previously inputted to the golf player, on a central portion of a surface of the terminal mechanism (A). The display means of the display section (2) will not be described in detail, but an aerial photograph and a design diagram which was prepared when the golf course was established are utilized so that layouts, such as a plan layout (a1) of individual golf courses and a sectional layout (a2) from which elevations of the whole course can be displayed. As a result, a player operates the display means or the player's position is confirmed so that the position is displayed automatically.

A selection key (7) for inputting auxiliary data, a data transmission interface (3) for electrically connecting the terminal equipment main body (1), and a dedicated cradle (5), mentioned later, are disposed below the display section (2). They are covered by a cover (4) when not in use.

In addition, the terminal equipment main body (1) is provided with an input member such as an electronic pen (6) which is necessary for a golf player to input play results. The electronic pen (6) is usually housed in the terminal equipment main body (1), and a golf player takes it out as the need arises and pushes (clicks) the display section so as to be capable of inputting (plotting).

The dedicated cradle mechanism (b1) of the analyzing mechanism (B) is composed of the dedicated cradle (5) which is capable of loading data for a group of golf players simultaneously, and the analyzing mechanism (B) can be electrically connected with the terminal mechanism (A) via the data transmission interface (3) provided to the terminal equipment (1).

In addition, the personal computer analyzing mechanism (b2) is composed of a computer main body (8) for analyzing scores, and it can collectively manage, edit and analyze the data which were electrically collected in the dedicated cradle (5).

In addition, the data which were edited and analyzed by the computer main body (8) can be outputted as information such as “table of score results of all the members” and “analyzed result of play information of a player” from the output mechanism (b3) composed of a laser printer (9) and a digital copy machine (10).

Furthermore, Web contents or the world wide web (www) is used so that the player can access the analyzed result at home. The player superposes the play scores on the display of the layout of the courses so as to visually analyze movements or to plan a strategy of golf. Namely, it can be useful to improve skill.

Here, a golf player is in the course of first hole, 390 yards and par-4, and makes a first shot. As a result, the player's carry is 235 yards and the shot ball falls onto a middle portion of a fairway. At this time, since the course of the first hole viewed from above is displayed on the display section (2) of the terminal equipment main body (1), the golf player uses the electronic pen (6) to push (click) a portion of the display section corresponding to the “235”-yard fairway of the hole diagram displayed on the display section (2). As a result, the player can input (plot) a result of the first shot into the terminal equipment (1).

As an example of use of the system, the player pushes the portion of the display section corresponding to the “235”-yard fairway to input, the pushed portion is recognized by the terminal equipment (1) as an arrival point of the shot ball. However, if the golf player inputs by describing an arc to trace the portion of the display section corresponding to the “235”-yard fairway, the terminal equipment (1) calculates a center of the arc inputted by the golf player and recognizes the calculated result as the arrival position of the shot ball.

At the same time, the type of a club-(driver, iron, etc.), state of lie (slanting to the right, slanting to the left, slanting to the front, slanting to the rear, etc.), swing (straight, slice, hook, fade, draw, etc.), mistake information (glance, duff (including movement of the ball), and swing and miss (not including movement of the ball), etc.) can all be inputted. The input method is simple because the electronic pen (6) is used to select from candidates displayed on the screen, and thus more detailed play results can remain as data in the terminal equipment main body (1).

As a result, the inputted data are retained in the terminal equipment main body (1) immediately, and are stored as a data base into the computer main body (8). Not shown in the drawings, but besides the hole course diagram, data bases such as a hole number, distance to the putting green and a number of par are displayed on the terminal equipment (1). It is most important that these data bases are multiplied by the data inputted by the golf player, and the multiplied data are operated and analyzed so that a carry and a residual distance are displayed as numerical values on the display section (2).

Further, in the case where the golf player is on the course except for the putting green, a total number of pars is displayed as a numerical value on the display section (2), and in the case where the golf player is on the putting green, a current number of putts is displayed as a numerical value on the display section (2). The golf player can think how to make the next shot based on the information provided by the terminal equipment main body (1).

In the next case, the golf player puts the ball onto the putting green at the second shot and aims to put the ball straight into the cup at the third shot using a putter, but the ball grazes the cup and is not put into the cup. Since the putting green has been inputted (plotted) as a drop position of the ball at the second, it is desirable that the enlarged diagram of only the putting green portion in the course on



the first hole viewed from above is displayed on the display section (2) of the terminal equipment (1).

Therefore, the golf player uses the electronic pen (6) to push (click) a portion of the display section corresponding to a location where the ball stops in the putting green displayed on the display section (2). As a result, the golf player can input (plot) the result of the third shot into the terminal equipment (1). In this case, since a club which is used on the putting green is only a putter, needless to say, it is not necessary to input the type of club.

In the next case, the ball at the fourth shot falls into the cup (so called no zero). At this time, the golf player pushes (clicks) a portion of the display section (2) corresponding to a location where the ball stops on the putting green displayed on the display section (2) using the electronic pen (6) and pushes (clicks) characters “go straight into the cup” displayed on the display section (2) so as to be capable of inputting “go straight into the cup” into the terminal equipment main body (1).

When the first, second, third and fourth shots are inputted in such a manner, how the first hole was captured and what par the golf player shot are displayed as data on the display section (2) of the terminal equipment so that the data are provided to the golf player.

In addition, a mistake in input can be corrected simply when the input result is confirmed. Namely, the display section (2) is pushed (clicked) by using the electronic pen (6) according to an input guidance displayed on the display section (2) so that the input is executed. As a result, a corrected content can be inputted easily.

As for the layout displayed on the display section (2), from a viewpoint of easiness of seeing, only the layout of shorter courses such as a short hole and a middle hole are displayed. Further, a device is possible such that a longer course, i.e., a long

hole can be displayed on the display section (2) by arbitrarily scrolling the long hole on the screen.

Here, the golf player shot on 9th through 18th and returned to the club house.

The data of the golf play, namely, information about the play results are stored in the terminal equipment main body (1) which was carried by the golf player. Therefore, the terminal equipment main body (1) is only inserted into the dedicated cradle (5) of the cradle mechanism (b2) via the data transmission interface (4) so that the data can be transmitted to the score analyzing system (B) on-line. As a result, the data collected in the computer (8) of the score analyzing system (B) is edited and analyzed.

The terminal equipment (1) is inserted into the dedicated cradle (5) via the transmission interface (3) so that the data about the golf play stored in the terminal equipment (1) is transmitted to the score analyzing system (B), but the transmission method is not limited to this. Namely, the data can be transmitted to the score analyzing system (B) by using an optical communication cable, a telephone line or a radio.

Furthermore, as for the data of the player, not only the play data on that day are managed and recorded, but also a success rate and the number of use of long irons for that day are calculated or when a long iron is used, a satisfaction level of the golf player, i.e., a rank of three stages A, B and C is inputted together with the play results into the terminal equipment main body (1). As a result, when the data is analyzed, an average satisfaction level is calculated and is displayed as the success rate of the results for that day, thereby attracting the great interest of the golf player.

The present invention is useful for the golf player to analyze him(her)self based on the data analyzed in such a manner.

In addition, the data, which is obtained in such a manner that the data about the golf play collected from the terminal equipment main body (1) is compared with the course information which was previously inputted into the score analyzing system (B) and is analyzed, printed by the laser printer (9) or the digital copy machine (10) so as to be capable of being provided via paper or electronic medium to the golf player immediately and easily.

Therefore, when the golf player goes home, the player can bring back a table of total scores of all members and the analyzed results of the play information which were printed on paper.

In addition, the data, which were obtained in such a manner that the data about the golf play collected from the terminal equipment (1) is compared with the course information previously inputted into the score analyzing system (B) and analyzed, is provided to the golf player via world wide web (www) and web contents, namely, they can be provided as visual information by cooperation with VTR, for example. As a result, when the golf player is in a distant place such as home, the player can plan a future strategy of golf and can make use of the present invention to improve the player's skill in golf.

The data, which was obtained in such a manner that the data about the golf play collected from the terminal equipment (1) is compared with the course information previously inputted into the score analyzing system (B) and is analyzed, can be transmitted back to the terminal equipment main body (1) via the dedicated cradle (5).

When a golf player will play on the same golf course within a few days, the returned data, namely, the data about the strategies, such that what course the player captured in the previous game, what kind of club the player used and what score the player shot, are displayed on the display section (2) of the terminal equipment (1). As

a result, while carrying the terminal equipment (1), the golf player can check the data at any time so that the present invention can be useful to improve the skill in golf.

As shown in the drawing, a course map on which characteristics of the course and various memorandums, for example, are described can be provided to the terminal equipment main body (1).

## **WHAT IS CLAIMED IS:**

1. An input terminal equipment for golf play information, comprising:
  - a computer I/O terminal having a size sufficiently small such that a golf player can carry said computer I/O terminal;
  - a layout of a golf course stored in said computer I/O terminal; a display on said terminal for displaying selected portions of the golf course layout; and a member for inputting information relevant to golf play into said terminal; wherein a golf player carries said terminal when playing golf, and inputs play results and the like into said terminal equipment main body using said input member so that the golf play information can be stored.
2. An input terminal equipment and an analyzing system of golf play information, comprising:
  - a terminal equipment main body whose size is in a range that a golf player can carry said terminal equipment main body;
  - an input member such as an electronic pen and a computer main body which is installed in a suitable position such as a club house and is capable of editing and analyzing data stored in said terminal equipment main body;
  - a cradle main body which is capable of loading the data in said terminal equipment main body into said computer; and
  - an output mechanism for taking out information which was edited or analyzed by said computer via electrical means such as a digital copy machine or a laser printer.
3. An input terminal equipment and analyzing system of golf score play information according to claim 2, wherein said computer is connected with a communication system such as web contents via world wide web (www)

so that the data which were edited or analyzed by said computer can be visually captured in a remote place.

13

【書類名】 図面

【図 1】

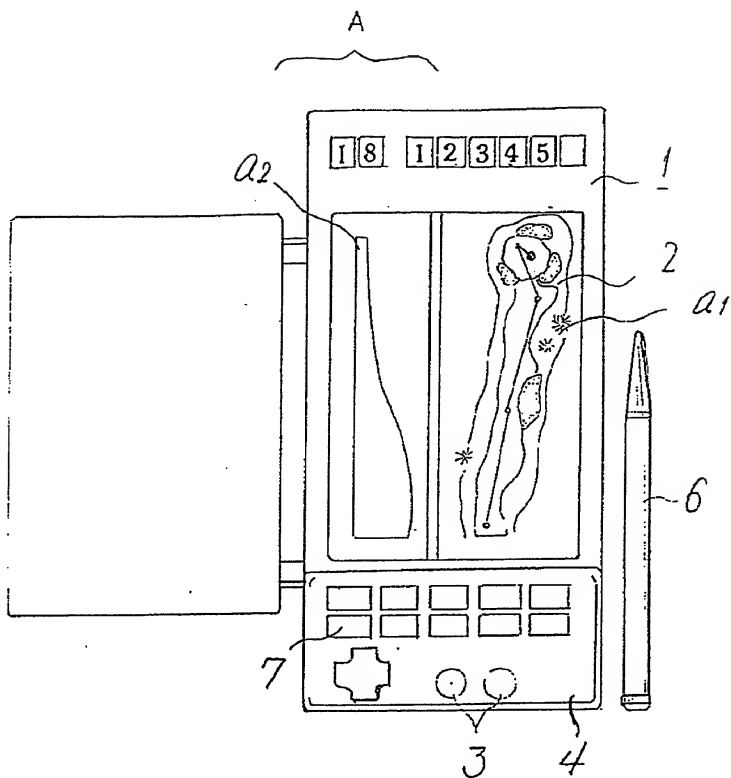


Fig. 1



【図2】

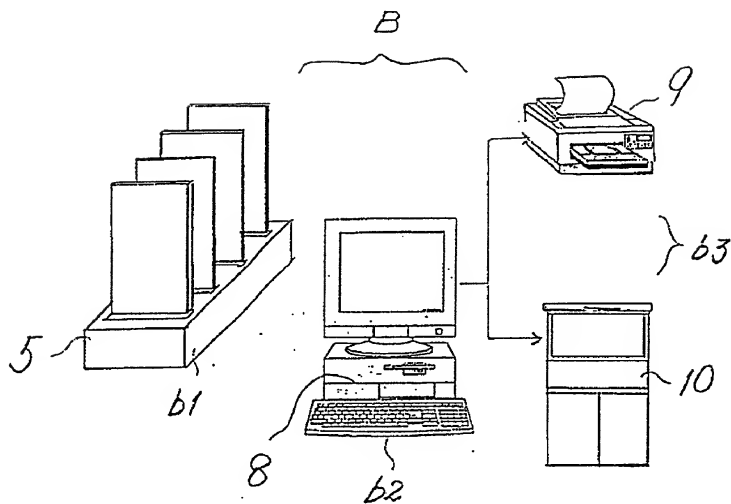


Fig. 2

【図3】

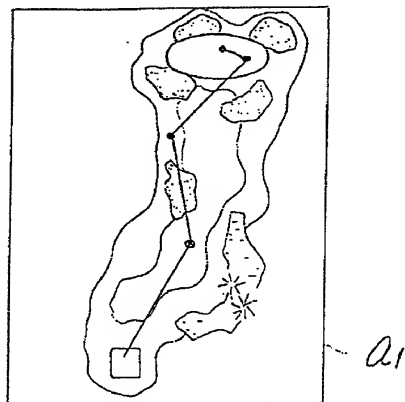


Fig. 3

【图 4】

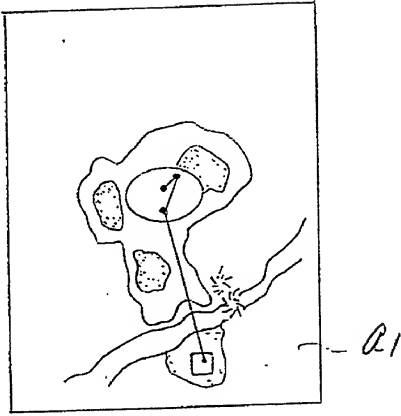


Fig. 4

050213.061200

**DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY**

As a below-named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention (Design, if applicable) entitled **TERMINAL EQUIPMENT OF GOLF PLAY INFORMATION AND ANALYZING SYSTEM THEREOF**

the specification of which (check one):

- ☒ is attached hereto.
- ☐ was filed on \_\_\_\_\_, as Application No. \_\_\_\_\_.
- ☐ was filed on \_\_\_\_\_, as International Application (PCT) No. \_\_\_\_\_, and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with *Title 37, Code of Federal Regulations, § 1.56(a)*. I hereby claim foreign priority benefits under *Title 35, United States Code § 119* of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which the priority is claimed.

**PRIOR FOREIGN APPLICATION(S)**

| NUMBER    | COUNTRY | DAY/MONTH/YEAR FILED | PRIORITY CLAIMED  |
|-----------|---------|----------------------|---|
| 11 212753 | Japan   | 27 July 1999         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
|           |         |                      | <input type="checkbox"/> Yes <input type="checkbox"/> No            |

I hereby claim the benefit under *Title 35, United States Code, § 120* of any United States application(s) or PCT international application(s) designating The United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of *Title 35, United States Code, § 112*, I acknowledge the duty to disclose material information as defined in *Title 37, Code of Federal Regulations, § 1.56(a)* which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

| APPLICATION NUMBER | FILING DATE | STATUS (Patented, Pending or Abandoned) |
|--------------------|-------------|---|
|                    |             |   |
|                    |             |   |

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under *Section 1001 of Title 18 of the United States Code*, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**POWER OF ATTORNEY:** I (We) hereby appoint as my (our) attorneys, with full powers of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: Stanley P. Fisher, Registration Number 24,344, and Juan Carlos A. Marquez, Registration Number 34,072

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| <b>Zip</b><br>160-0011   |  | <b>Zip</b><br>160-0011                           |  |
| <b>DATE</b><br>June 2, 2000                                    |  | <b>SIGNATURE</b><br>Muneomi Katayama             |  |